

ANTHROPOLOGICAL FINDS OF THE BRONZE-AGE CEMETERY OF PITVAROS

by

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The Tisza—Maros country where we know a great number of findspots is one of the most fruitful areas of the investigation of Bronze-age. The cemeteries at Szőreg, Deszk, Ószentiván (in Tiszasziget) and Óbéba, so similar to one another in vessel types, are adjacent also geographically, situated in the triangle of Tisza—Maros-Aranka. We find East of this group the findspots of the cemeteries at Szemlak and Perjámos and North of it that of the cemetery at Pitvaros. These are in a larger area than the geographic unit, in the triangle formed by Tisza—Százaker-Aranka, resp. close to it (*Fig. 1.*).

The Bronze-age civilization represented by the archaeological relics of the cemeteries enumerated is very characteristic of this area. Its investigation was carried out by the archaeologists very intensively and in connection with this subject-matter several considerable summarizing papers were published (Bóna 1960a, 1961, 1965a). Also the problem of chronology of the Bronze-age was treated of, as known, by more authors (Childe 1929, Mozsolics 1961, Bóna 1965a, 1965b, 1966).

The early phase of Bronze-age, too, may be found in more archaeological publications. The relics of this period is wellknown. This cannot be said, unfortunately, of the anthropological finds. The special literature referring hereto (Allodiatoris 1958, Farkas—Dezső 1965, Farkas 1966, 1968a, 1969) is containing only very few publications concerning the problems of Bronze-age (Bartucz 1928, 1938, Apor—Nagy 1940, Lipták 1957, 1962a, Farkas—Lipták 1968). A cause of this is first of all that earlier there wasn't taken good care of rescuing the skeletons of Bronze-age.

Recently, the number of Bronze-age finds have become still higher. From anthropological point of view the cemetery excavated at Mokrin, Yugoslavia is to be emphasized. This makes absolutely necessary to elaborate as soon as possible the skeleton finds excavated in the geographic area mentioned.

The problem of the formation of population in the early Bronze-age was analysed in details from archeological point of view in Bóna's comprehensive work of theoretical significance (Bóna 1965a). On the basis of this, for the anthropologist the problem is raised in the way whether in the formation of population of the early Bronze-age, in the Maros country, there took place:

- (1) *the Copper-age population of the previous Pécel civilization — being similarly of Southern origin,*
- (2) *the Copper-age population of Southern, Aegean origin advancing to North,*
- (3) *the mounted nomads of Eastern origin from the steppe (heath), or*
- (4) *all the three groups together.*

After antecedents like these we have decided — first of all as a result of the inspiring influence of our archaeologist colleague Ottó Trogmayer for whose valu-

able directions and guidance we wish to express our special thanks in this way, too — to perform the anthropological analysis of the cemetery at Pitvaros. We are indebted also to Prof. Pál Lipták for analysing the finds taxonomically.

The problem of representation of the cemetery at Pitvaros

As known, the cemetery at Pitvaros was excavated by Ferenc Móra in 1926, after a previous notice. We don't want to deal here with a detailed description and documentation of the cemetery because this task is already perfectly performed in earlier archeological publications (Patay 1938, Kutzián 1958, Gazdapusztai 1962, Bóna 1965a). It was analyzed with great care particularly by Bóna and he considers it to be of the same age as the Kőtörés group of the Nagyrév civilization, being in relationship with the earliest graves belonging to the Perjámos civilization of the cemeteries at Ószentiván and Klárafalva. On the basis of his own chronology (Bóna 1965a), he ascribed them to the time between the end of Period I and the beginning of Period III, in absolute chronology between 1820 and 1720 b.o.e. (Bóna 1965b). His establishment that the population of the group at Pitvaros buried the dead ones contracted, with heads orientated in direction North-South or South-North, face towards East. The graves with gold furniture — being placed deeper — may have been the graves of the older ones, of the chieftains or of the best warriors of the tribe. The few graves lying higher without any furniture show possibly the presence of patriarchal slaves while the other members of the tribe were buried with common gravegoods (Bóna 1965b).

There are characteristic furniture pieces of male graves: the bone-needles, wound bronze bracelets, gold hair rings. Not characteristic but common things are: animal teeth, pearls, shells, crooked bronze torques.

The female graves are characterized by necklaces consisting of faience-pearls and snails, spectaclespiral, Panpipe-shaped bronze plates, coronet, Cypress needles, and (there may) occur also bronze bracelets and gold hair rings (Bóna 1965b).

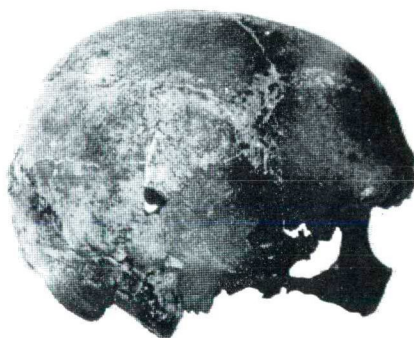
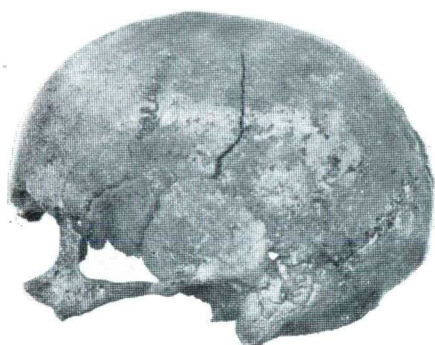
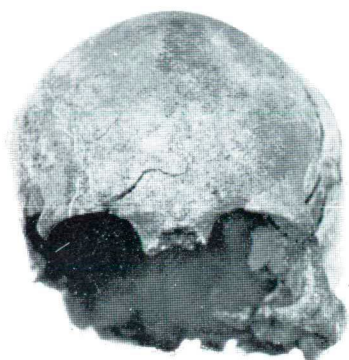
Now it is questionable what of this archeological statement can be verified on an anthropological basis.

Before being able to go into the merits of this case, it is first to make clear to what extent the cemetery at Pitvaros that is so important from archeological point of view is capable of being evaluated anthropologically.

Bóna estimated the size of the cemetery group at Pitvaros at 40—60 graves and considered them as clan cemeteries (Bóna 1965b). In the cemetery at Pitvaros 49 graves were opened together, six of them were of the migration period, 43 of the Bronze-age — among them grave 30 is double, grave 25 only symbolic, without any skeleton. It cannot be established unambiguously whether or not these 43 graves of Bronze-age mean the complete cemetery. All the same, it seems on the basis of the schematic bulletin of excavation that the complete cemetery was opened. From grave 49, however, not more than 15 crania (33 p.c.) were rescued, one of them of the migration period. Long bones and pelves did not remain. The representation of the anthropological opening of the cemetery (Éry—Kralovánszky—Nemeskéri 1963) is therefore much smaller than that of its archeological excavation.

The quantitative and qualitative representative value of the part investigated of population is rather low, representing the original inhabitants in not more than 25 percent.

TABLE 1



Inventory No. 147, Grave No. 24
Gracile Mediterranean female

Inventory No. 148, Grave No. 27
Alpine female

TABLE 2



Inventory No. 156, Grave No. 1
Cromagnion - A + gracile
Mediterranean male

Inventory No. 145, Grave No. 15
Gracile Mediterranean male

Evaluation of finds in details

(1) AUTHENTICITY

As the finds had come to light more than forty years ago, it was absolutely important to investigate their authenticity in great detail.

One of the crania cannot be identified with absolute certainty. Its inventory number is 141. As the inventory number of the material begins with 141 and the find of grave 3 is marked with inventory number 142, moreover the cranium of grave 1 is indicated with inventory number 156, it may be imagined that the find of inventory number 141 belongs to grave 2. In this grave there were found pieces of grave-furniture characteristic of males, and also the find can be regarded as a male cranium. We have therefore included this find conditionally in the material of grave 2. The inventory numbers of the material go on continuously from 141 till 156, only the find of inventory number 150 is missing.

(2) CONNECTION BETWEEN SEX AND BURIAL RITE

As the long bones and pelvis are not available, sex could be determined only on the basis of the morphologic stamps of crania. From the 14 finds, six crania (those coming from graves 1, 15, 29, 33, 27 and the find of inventory number 141 without grave number) can be determined as male, seven crania (finds of graves 3, 9, 24, 27, 34, 43, 44) as female, and one cranium (find of grave 21) as that of an infant. We notice that the find of grave 43 is at the frontiers of the juvenile and adult ages. On the basis of its stamps it can be considered as female.

For better perspicuity of the connection between grave-furniture, direction of skeletons and sex, we have summarized our data in Table 1. From that it may be seen that:

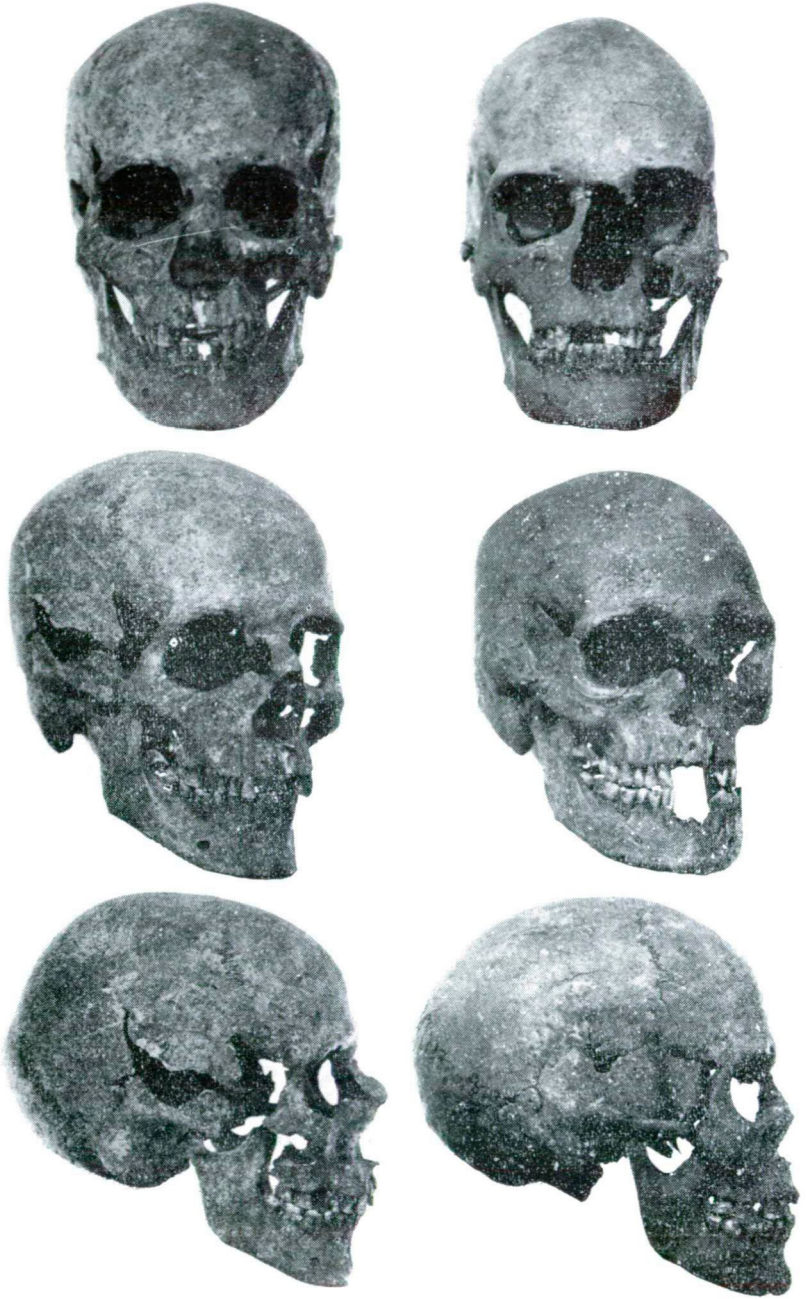
(a) In female graves there were without exception skeletons lying on their right sides, their heads being orientated in the direction South-North. At males this practice was not so definitely uniform. Two graves were namely orientated in the direction North-South and the skeletons were lying on their left sides. In one grave the corpse was orientated in the direction South-North as characteristic of females and lying on its right side (grave 15). In one grave — according to the record of excavation — the individual was buried in sitting posture (grave 37). To the problem of grave 15 we are later on returning.

(b) The furniture pieces of pottery, bronze, stone and animal bones are not connected to either of the sexes. Anyway, from the 14 graves, gold pieces and spectacle-spiral did occur only in female graves, and also pearl mainly in those. Dish-cover as well as bronze bracelet were, however, found only in male graves.

In addition we have to notice that in grave 36, that is orientated in the direction NW—SE being supposedly that of a male, and in grave 11, too, gold hair rings were found. The anthropological find of the latter grave could, however, not be investigated because it had not been rescued. Thus we have no certain basis for sex.

After determining the sex of the anthropological finds, there seems therefore correct Bóna's statement that at the population of the group at Pitvaros the spectacle-spiral and gold hair rings are furniture pieces characteristic of female graves, the bronze bracelet, however, of male graves. The cover without vessel can similarly accepted as a furniture piece characteristic of male graves.

TABLE 3

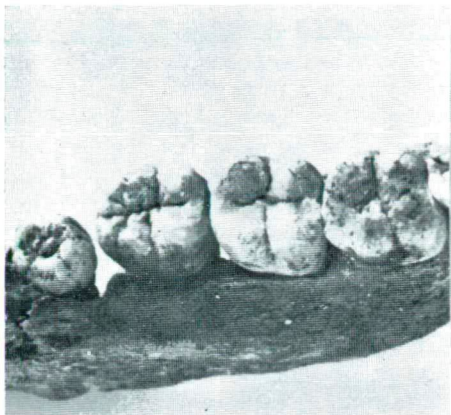


Inventory No. 149. Grave No. 29
Eastern Mediterranean male

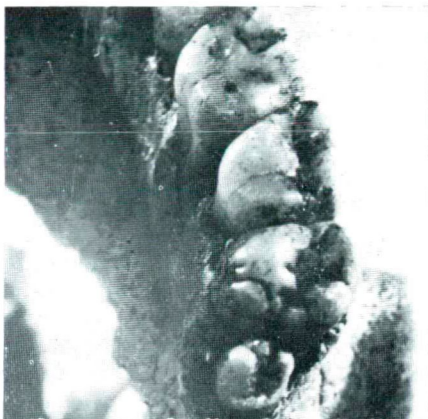
Inventory No. 142. Grave No. 3
Atlanto-Mediterranean female

TABLE 4

1



2



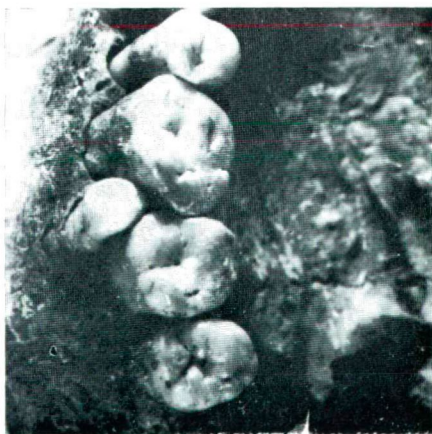
Supernumerary d. inf. and s. sup. molars
(Inventory No. 145, Grave No. 15.)

3



Persistent s. sup. M. caninus
(Inventory No. 151, Grave No. 33.)

4



D. sup.ektodens
(Inventory No. 154, Grave No. 43.)

We could observe phenomena concerning the connection between sex and grave-furniture in the cemetery at Mokrin, too, that are very similar to the above-described ones.

Bóna supposed, as well, that the graves with gold hair rings are containing the skeletons of older ones, chieftains, or of the best warriors of the tribe. This supposition, anyway, cannot be supported with anthropological data. There were namely 2—2 gold hair rings in three graves (graves 11, 27, 36). From these, grave 11 did not contain any bone find, thus sex cannot be determined there on the anthropological basis. The cranium found in grave 27 is female. And in grave 36 — being orientated in direction NW—SE — a male was supposedly buried. A piece of a gold plate was found in grave 24, too, the find of which on the basis of its orientation and the cranial stamps may be considered unambiguously as female. Essentially, therefore, two of the graves with gold furniture pieces were female, one of them male, and about one we know nothing certain.

In addition, the finds of graves 24 and 27 are from taxonomical points of view entirely different. The former one has the characteristics of the Mediterranean race, the latter one, however, those of Alpine race. As the appearance of Alpine race in our territory cannot be explained by an immigration from South, it is to be supposed that he was either a representative of the autochthonous population living here or that of the adjacent Nagyrév civilization flourishing in the same time. The latter possibility is made probable also by the fact that in the cemetery at Pitvaros as furniture pieces of graves 4 and 33 there were found vessels of Nagyrév type.

As regards the connection between the peculiarities of the age of life and the gold furniture pieces, the following can be ascertained. In case of graves 11 and 36 we could not find any proof of the age of life. The crania of the female graves 24 and 27 are bearing witness to individuals died in old age. We have, however, to draw the attention to that from the graves with gold furniture pieces of the cemetery at Mokrin, that is of a very similar archaeological age and rite, grave 200 was that of a woman about 30—35, grave 267 that of a girl infant with S—N orientation, and grave 287 that of a mature-senile woman.

On the basis of all these we suppose, therefore, that at the Pitvaros group gold was a piece of gravefurniture of the chieftain and of his immediate relations. A gold plate or disc, as an emblem of power, probably with males, and the gold hair rings first of all with females. The age of life may here have had only such a role that the real age of life of the high-born ones was probably higher. It cannot be declared, however, as a regularity that gold pieces can be found only in the graves of older ones. In case of the finds at Pitvaros, the two female crania of difference types make probable that the chieftain may have lived in polygamy and the selection of his wives was in connection with establishing contact with other tribes, as well. It may have been also one of the symbols of the peaceful coexistence of two foreign tribes.

(3) CLASSIFICATION OF FINDS FROM ANTHROPOLOGICAL POINT OF VIEW

I. Hyperdolicho-dolichocranic group. — It is a group containing definitely long-headed finds. The cranium is of absolute length (medium length), narrow (of medium breadth). The front is narrow (of medium breadth), eury-metopic (metriometopic), the face is leptoprosopic (mesoprosopic), leptene, the nasal ridge is concave (straight), the lambdoid region is flattened, the occiput is convex.

Table 1: Sex determination on the basis of grave-furniture and anthropological marks in the cemetery at Pitvaros

Grave No.	Orientation of the skeleton in grave		Ceramics							Pearl			Stone		Metal					Animal				
			Dish					Jug		Faience	Chalk	Snail	Idol	Piece	Bronze				Gold		Tooth	Bone		
	Without ear	One-eared	Two-eared	Three-eared	Wart-eared	One-eared	Two-eared	Vessel-cover	Bracelet						Spectacle-spiral	Plate	Dagger, needle, awl	Pipe	Plate	Hair ring				
																							On which side did the skeleton lie	
A) Males																								
1.	—	—	+											+										
15.	S—N	Right side		+							+					+								+
29.	NE—SW	Left side																						
33.	N—S	Left side						+																
37.	—	Sitting posture			+				+	+					+		+		+					
B) Females																								
3.	—	—				+																		
9.	S—N	Right side								+			+			+		+						
24.	S—N	Right side		+						+								+		+				
27.	S—N	Right side								+											+			
34.	S—N	Right side					+															+		
43.	—	—		+					+	+	+						+							
44.	S—N	Right side																						

Table 2: Principal measurements and morphological characters of the crania at Pitvaros

Size No. (Martin)	Measurements and indices	Males			
		1. 156 Mat.	2(?). 141 Sen.	15. 145 Ad.	29. 149 Mat.- Sen.
1.	Maximum cranial length	192	185	181	184
1c.	Cranial length from metopion	185	185	179	181
5.	Length of cranial base	—	—	—	104
8.	Maximum breadth of cranium	132	135	131	139
9.	Minimum frontal breadth	99	99	97	94
17.	Basion-bregma height	—	—	—	137
20.	Porion-bregma height	110	—	112	115
32.1.	Frontal angle (in degrees)	56	62	61	60
38.	Cranial capacity measured	(1320)	—	(1270)	(1320)
40.	Facial length	—	—	—	99
45.	Bizygomatic breadth	138	—	(124)	—
46.	Maxillar breadth	104	—	83	—
47.	Facial height	121	—	117	116
48.	Upper facial height	74	—	69	70
51.	Orbital breadth	43	—	(39)	(43)
52.	Orbital height	31	—	33	33
54.	Nasal breadth	26	—	27	(28)
55.	Nasal height	54	—	50	53
62.	Palatal length	45	—	—	—
63.	Palatal breadth	40	—	39	41
65.	Bicondylar diameter	122	—	—	123
66.	Bigonial diameter	115	—	—	111
69.	Mental height	29	33	—	37
70.	Ramus height	64	—	60	59
71.	Ramus breadth	33	—	(27)	29
72.	Total facial angle (in degrees)	87	—	87	82
8:1	Length-breadth index	68,8	73,0	72,4	75,5
17:1	Length-height index	—	—	—	74,5
17:8	Breadth-height index	—	—	—	98,6
9:8	Transvers. frontopar. index	75,0	73,3	74,1	67,6
47:45	Facial index	87,7	—	(94,4)	—
48:45	Upper facial index	53,6	—	(55,7)	—
52:51	Orbital index	72,1	—	(84,6)	(76,7)
54:55	Nasal index	48,2	—	54,0	(52,8)
63:62	Palatal index	88,9	—	—	—
Norma verticalis		Ov.	Pent.	Pent.	Rhomb.
Glabella		2—3	3	2	3
Protuberantia occipitalis externa		0	2	2	2
Fossa canina		4	—	5	2
Spina nasalis anterior		2—3	—	3	4
Alveolaris prognathia		1—2	—	1	2
Taxon		crA-m	m	m	m-ar or Eastern m

Males		Females							Child
33. 151 Ad.	37. 153 Ad.	3. 142 Ad.	9. 144 Ad.	24. 147 Mat.	27. 148 Mat.	34. 152 Ad.	43. 154 Juv.- Ad.	44. 155 Ad.	21. 146 Inf. II.
186	187	179	177	183	171	179	174	166	178
184	184	175	181	183	166	179	178	168	180
110	—	—	—	—	—	105	95	95	96
139	138	124	129	133	137	137	133	134	134
98	94	90	90	96	100	96	86	98	—
140	—	—	—	—	—	132	134	134	127
113	—	114	—	—	106	109	113	112	—
57	60	57	62	58	58	56	62	63	60
1510	—	(1190)	—	—	(1110)	—	1270	1150	—
108	—	—	—	—	—	—	89	89	—
131	—	125	—	—	—	—	119	128	—
94	—	94	81	—	—	—	91	96	—
111	—	113	—	—	—	—	—	108	—
65	72	71	—	—	—	—	61	65	—
37	44	37	—	—	—	—	39	38	—
31	33	35	—	—	—	—	31	29	—
23	—	—	—	—	—	—	23	25	—
47	50	51	—	—	—	—	43	46	—
—	(44)	—	(42)	—	—	—	41	43	—
40	—	—	32	—	—	—	35	41	—
116	—	120	—	—	—	108	—	112	96
95	—	93	86	—	95	—	—	107	—
33	—	33	37	—	27	30	—	32	—
69	64	60	—	—	—	56	—	61	39
39	37	29	29	—	36	32	—	31	29
80	86	83	—	—	—	—	83	83	—
74,7	73,8	69,3	72,9	72,7	80,1	76,5	76,4	80,7	75,3
75,3	—	—	—	—	—	73,7	77,0	80,7	71,4
100,7	—	—	—	—	—	96,4	100,8	100,0	94,8
70,5	68,1	72,6	69,8	72,2	73,0	70,1	64,7	73,1	—
84,7	—	90,4	—	—	—	—	—	84,4	—
49,6	—	56,8	—	—	—	—	51,3	50,8	—
83,8	75,0	94,6	—	—	—	—	79,5	76,3	—
48,9	—	—	—	—	—	—	53,5	54,4	—
—	—	—	(76,2)	—	—	—	85,4	95,4	—
Ell. 2—3	Pent. 2—3	Ov. 2	Pent. 1	Pent. 1	Sphen 3	Sphaer. 2	Rhomb. 2—3	Sphaer. 2	Pent. 1
1	0	1	0	0	0	0	1	0	0
3	2	2	—	2	—	—	2	4	—
2	4	—	—	—	—	—	2	2	—
3	2	2	2	—	2—3	2	2	3	—
m-crA	Eas- tern m	am	m	m	a	?	m	p-crB	—

This group contains the finds classified to the gracile variation of the Mediterranean race (graves 2, 15, 17, resp. 9, 24). As a result of Cromagnoid factors, the facial index can change at this group meso-euryprosopic (graves 1, 33), the front is high at the Atlanto-Mediterranean race (grave 3). Five of the available six male finds and three of the seven female ones belong to this group containing the most part of the population detail.

II. Mesocranic group. — It is characteristic of this group that it contains rather the longer-headed variations of mesocranic finds. At the finds belonging here, the cranium is of absolute medium height (long), narrow (of medium breadth), the frontal is narrow (of medium breadth), steep, mostly high. The cranium is in profile metrioakrocranial. The nasal ridge is concave.

The difference between groups I and II is to be seen first of all in the absolute and relative length of cranium, in the height of front. The finds of one male (grave 29) and of two females (graves 37, 43) are belonging to this group. These finds are showing mainly the characteristics of the Eastern Mediterranean (Iranian?) and gracile Mediterranean races.

III. Meso-brachycranial group. — At the finds belonging here, the cranium is of medium length or short, of medium breadth or narrow. The frontal is broad (of medium breadth), low. The lambdoid region is flat. The occiput is convex.

As compared with both previous groups, at this group we find a difference first of all concerning the absolute and relative length of cranium. Although the finds are brachycephalic, the index values take place nonetheless near mesocrany and brachyranity.

There can be classified into this group two females crania (graves 27, 44) having the characteristics of the Alpine and Pamirian races.

64 percent of the whole population part belong therefore to the dolichocephalic group (I), and the frequency of brachycephalic elements is not more than 14 percent (III).

(4) COMPARISON OF THE FINDS OF THE PÉCEL CIVILIZATION AND OF THE CEMETERY AT PITVAROS

Nemeskéri investigating the population of the Pécel civilization established that the finds of the cemetery excavated at Alsónémedi can be classified into three groups from anthropological point of view (Nemeskéri 1956):

I. Dolicho-mesohypsicranial group. — Its characteristics are: dolicho-meso-hypsiakrocranity, stenometopy, leptoprosopy, ovoid-ellipsoid contour in norma verticalis, straight nasal ridge.

The basic characteristics of this group are given from the Mediterranean element but modified in the direction of the mesomorphic characters.

II. Meso-hypsicranial group. — Its characteristics are: meso-brachy-hypsiakrocranity, metrio-stenometopy, meso-euryprosopy, high-bridged median-sagittal contour, lambdoid flatness, straight, rarely convex nasal ridge.

This group is a local variation of the gracile Mediterranean and Western Alpine elements.

III. Brachy-hypsicranial group. — Its characteristics are: brachy-hypsiakrocranity, meso-eurymetopy, meso-leptoprosopy, high front, flat occiput, straight nasal ridge.

In this group there can be observed mainly the Western Alpine, partly the Eastern Alpine elements.

In the cemetery at Budakalász, apart from these three groups, there can be separated the following, as well:

IV. Dolicho-hypsicranic group. — Its characteristics are: definite dolichocrany, high facial cranium, leptoprosopy, long, high and straight ridge of nasa, strongly convex occiput.

This group is showing a connection with the Atlanto-Mediterranean race.

At the finds of Pitvaros we have found three of the enumerated four groups: the dolichocranic (IV), the meso-dolichocranic (II), and the brachycranic groups (III). This fact itself would justify supposing a genetic connection between the population of Pitvaros and that of the earlier Pécel civilization. We shall anyway compare the ratio of these groups in the single cemeteries with one another:

	Brachycranic		Mesocranic		Dolichocranic		Total
	p. c.		p. c.				p. c.
Alsónémedi	4	25	9	56	3	19	16
Budakalász	7	16	17	40	19	44	43
Pitvaros	2	14	3	21	9	64	14

However low the case numbers are, it may nonetheless be seen from the percentile comparison immediately that we find at the population of Pitvaros the least brachycranic elements and — what is still more important — also the most dolichocranic ones — as compared to the two cemeteries from the Copper-age. This allows the conclusion that the populations excavated at Alsónémedi and Budakalász — as established by Nemeskéri — are containing not the Mediterranean elements got here from South but their local variations. This is shown first of all by the fact that the cranial length of the Mediterranean races became absolutely and relatively smaller. This phenomenon cannot be observed at the finds of Pitvaros, that is to say, these have preserved their original aspects and, therefore, cannot be originated from the population of the earlier Pécel civilization.

The expression of this process of brachycephalization can be observed at the average of the cranial indices, as well. In the material of Pitvaros the mean cranial index is 73.0 at males and 75.5 at females. The common averages of the two sexes in the single cemeteries are as follows:

Budakalász	79.6
Alsónémedi	77.3
Szentes-Nagyhegy	77.5
Palotabozsok	75.3
Pitvaros	74.2

As we see, the facts mentioned above are thoroughly supported by the values enumerated.

Apart from the taxonomical evaluation, at studying the population of Bronze-age it is important to analyse the single characteristics, as well. We could observe, just at the finds of Pitvaros, the frequent repetition of the single morphologic characteristics and also some anomalies.

In connection with that, we would like referring to that even at this find complex of low number in three cases (graves 15, 33, 43) we found some rather rare dental malformations. From these finds the male cranium of the grave 15 was particularly conspicuous containing supernumerary teeth. Another peculiarity of it was being

buried with a S—N orientation that characteristics of females. Without attaching a great importance to this find, we thought necessary to mention it because it is imaginable that these anomalies can be connected with the peculiar situation of this individual in the population of Pitvaros.

- 1 *Allodiatoris I.* 1958: A Kárpát-medence antropológiai bibliográfiája. Ed.: Akadémia Kiadó, Budapest. 93—96.
- 2 *Apor L.-Nagy I.* 1940: Kora-rézkori sírok Kotacparton. MTA Mat. Tud. Ért. 59, 943—956.
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